 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 1 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

A. Best Management Practices (BMPs) Selection and Implementation

BMPS Already In Place for Ongoing Operations:

As a petroleum refinery/chemical manufacturer/packaging plant, Bayway Refinery, Infineum WSCP and the Turbo Oil Plant, respectively, are highly regulated facilities. Numerous safety and environmental regulations apply to the containment and control of materials, products, by-products, residuals and waste materials. Compliance with these regulations takes the form of structural and non-structural methods, with most methods documented in existing plans, manuals and procedures. SPPP Section III lists existing documentation in effect. Most of those documents are readily accessible by site personnel in hard copy and/or on Bayway's intranet. Like most other environmental compliance plans and procedures, this SPPP will also be accessible on Bayway's intranet.

BMPs are structural and nonstructural measures used to prevent or mitigate pollution from activities that could generate pollutant loadings if exposed to stormwater discharging to surface water. Many BMPs are already in place for ongoing operations and are addressed in existing plans, manuals and procedures. As such, existing BMPs are generally only referenced in this SPPP to facilitate consistency and plan maintenance. The majority of BMPs applicable to ongoing operations are addressed in the DPCC Plan, process unit Operating Manuals, Safe Work Procedures Manual and Emergency Response Manual. Nonstructural BMPs specific to NJ0026671 are discussed in more detail in this section.


In accordance with the NJ0026671 permit effective 2007, a site assessment was performed to identify areas that may require stormwater controls to reduce or eliminate pollutant loading in stormwater discharges from the Bayway refinery and Infineum WSCP facilities. SPPP Section VII of the original Plan covered implementation of structural stormwater controls, all of which have since been completed.

BMPS Required by NJPDES NJ0001511

The Bayway Refinery is no longer required to maintain a BMP Plan by the renewed NJPDES-DSW NJ0001511, since the prior NJ0001511 BMP Plan requirements were duplicated by the SPPP BMP requirements. The former NJ0001511, Part IV – B/C, Section 3 required a BMP Plan “[i]n order to prevent, or minimize the potential for the release of toxic substances from ancillary activities to the waters of the United States through plant runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage”. Operations to be addressed include “material handling areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.” Because the NJ0001511 and NJ0026671 BMP requirements are similar, the NJ0001511 BMP Plan had been incorporated into this SPPP to eliminate duplicity and simplify plan implementation and maintenance. SPPP Attachment 2 addressed the NJ0001511 BMP Plan requirements in more detail until the BMP Plan requirement was removed from the renewed NJ0001511 permit requirements.

BMPS for New Development and Redevelopment:

The Bayway Refinery site is largely developed but still contains some undeveloped land areas and other areas subject to redevelopment. The design of any major development at the Bayway Refinery

	<p style="text-align: center;">Water Programs and Procedures Manual</p> <p style="text-align: center;">Stormwater Pollution Prevention Plan (SPPP)</p> <p style="text-align: center;">Section VI: BMP Selection and Plan Design</p>		<p style="text-align: right;">Page 2 of 19</p>
<p>Revision: 8</p>	<p>Date of Last Revision: February 17, 2020</p>	<p>Approved By: <u>Reval.doc</u></p>	
<p>Retention Code: CG01</p>	<p>Written/Reviewed By: <u>Principal Env. Engineer</u> (Water) / <u>Reval.doc</u></p>		<p>Reason for Change: <u>Update</u></p>

site will comply with applicable stormwater management standards at N.J.A.C. 7:8 as addressed further in SPPP Attachment 3. The New Jersey Stormwater Best Management Practices Manual (BMP Manual) provides guidance to address applicable standards and can be accessed through the following link to the NJDEP website, http://www.njstormwater.org/bmp_manual2.htm.

B. Non-Stormwater Discharges into Storm Sewers

NJ0026671 regulates stormwater discharges associated with industrial activities from Bayway Refinery facilities. This includes point and non-point source stormwater discharges to surface waters. NJ0026671 also requires BMPs for stormwater that commingles with other discharges. Commingled discharges to surface waters are addressed by NJ0001511. NJ0105104 addresses discharges to groundwater. The Bayway Refinery does not discharge through storm sewers to surface waters any domestic wastewater, non-contact cooling water, or process wastewaters that are not authorized by a NJPDES permit or identified in a NJPDES permit renewal application or request for authorization.

C. Removal, Cover or Control of Industrial Activities


As previously stated, the Bayway Refinery is predominantly an outdoors facility. Some exposure to industrial activity is protected from stormwater by being covered or indoors. However, in most cases, due to the size and nature of the facility, exposure of source materials to stormwater is controlled by containment and/or procedures, including the BMPs addressed in this section. Whether indoors or outdoors, all source materials are used, handled, and/or stored in a manner so as to prevent or minimize contact with stormwater that is discharged to surface water.

D. Diverting Stormwater

NJ0001511 regulates discharges from the onsite WWTP at DSN002A, a parshall flume monitoring station located prior to the WWTP discharge to a sewer that discharges to Morses Creek. NJ0001511 recognizes that the WWTP treats stormwater and process wastewater. Diversion of stormwater to the WWTP occurs from process areas, some tankfields, some onsite streets, some containment areas located outside of process areas, and some open areas as a result of the historical development of the site. Storm and condenser sewers drain stormwater from most nonprocess areas, some tankfields and containment areas (e.g., if there is no sheen on the contained stormwater), most onsite streets, and most open areas. Some areas tend to pond due to topography and/or manmade facilities (e.g., empty tank containment areas). BMPs are relied upon to ensure that stormwater with potential exposure to source materials that can drain to surface waters is controlled (e.g., tankfields and containment areas that do not drain to the process sewer are checked for sheen before releasing stormwater from the containment areas as addressed further in this SPPP Section).

E. Spill Prevention and Response

In general, Bayway Refinery and Infineum WSCP have the equipment, resources and personnel to respond to and clean up most spills within 24 hours, and mobilize the necessary resources to contain, control and cleanup larger spills. Bayway has trained response personnel onsite at all times. All environmental releases are reported to the Shift Superintendent who determines the appropriate

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 3 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	


response and any need for assistance. Spill prevention and response is conducted in accordance with the following:

- Areas where potential spills of source materials exposed to stormwater can occur and their accompanying drainage points are identified in the DPCC Plan and Drainage Control Maps that are part of this SPPP.
- Material handling procedures, storage requirements and control equipment such as diversion valves to prevent and/or eliminate exposure of stormwater to spills of source materials are addressed in the DPCC Plan and process unit Operating Manuals.
- Procedures for responding to spills of source materials are addressed in the DCR Plan, FRP, Emergency Response Manual and process unit Operating Manuals, as appropriate based upon the size and type of spilled material. This includes agency notifications, recordkeeping, communications, responsibilities, response procedures, internal and external resources, environmentally sensitive areas, safety procedures, training and waste management procedures. Spills to land are not washed to surface waters.
- All personnel that may be involved in spill response are trained as discussed in DPCC Plan Section 6.11. All spill response reference materials are available to trained personnel through hard copies and/or Bayway intranet access.

F. Good Housekeeping

Good housekeeping is relied upon by Bayway Refinery and Infineum WSCP to maintain a clean and orderly work place both for safety reasons and to minimize or prevent exposure of stormwater to source materials. Good housekeeping practices are addressed at the Bayway Refinery and Infineum WSCP by several means, including the following:

- Initiation of cleanup activities upon discovery of leaks and spills as discussed in Bayway Refinery's DPCC Plan Section 6.10 and DCR Plan Section 1 and Infineum's DPCC Plan Section 6 and DCR Plan Section 8.
- Material control practices discussed elsewhere in this SPPP, including inventory, storage, handling and transfer practices.
- Regular inspection and preventive maintenance programs to ensure proper operation of process equipment.
- Housekeeping requirements documented in general in Bayway Refinery's Safe Work Procedures Manual Section 1-D and Infineum's HSE Manual Section 1.04, and more specifically in process unit Operating Manuals, which include routine operator responsibilities for housekeeping activities.
- A waste management program for handling, pickup and disposal of all refinery and WSCP residuals.

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 4 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

- Routine and scheduled safety and housekeeping inspections of process units.
- Annual employee refresher training, including the importance of good housekeeping in accordance with NJ0026671.

Examples of good housekeeping practices in place include:

- Storage of chemicals within containment areas as required by regulation and in accordance with Safe Work Procedures Manual Section 5-B.
- Litter baskets are located throughout the refinery to facilitate separation of waste types and housekeeping.
- Saw dust control is in place at the onsite Carpenter's Shop.

In addition to the above, as required by NJ0026671, Bayway Refinery and Infineum WSCP sweep paved access roads and parking areas that drain to surface waters at least twice per year, and outdoor paved maintenance, fueling and salt storage areas that drain to surface waters at least monthly. A record of sweeping activities will be maintained.


G. Preventive Maintenance

An established preventive maintenance program is integral to reliable Bayway Refinery and Infineum WSCP operations. As such, Bayway and Infineum have their own mechanical and maintenance groups, including inspectors, to conduct routine and preventive maintenance. Many spare parts and supplies are maintained at the onsite storehouse and other equipment staging areas to facilitate routine repairs. Additionally, trained process unit operators are relied upon to check equipment on routine schedules (e.g., for lubrication) to ensure equipment is properly maintained. Process unit operators also conduct routine inspections of all storage and process equipment containing source materials, as addressed in Bayway Refinery's DPCC Plan Section 6.9 and Infineum's DPCC Plan Section 6. Preventive maintenance activities include regular inspections and maintenance of stormwater management devices (e.g., tankfield oil/water separators, storm sewer catch basins, and storm sewer outfalls) and areas with erosion potential, including paved surfaces in need of repair.

H. Inspections and Evaluation Process

Regular Inspections

NJ0026671 requires at least quarterly visual inspections by qualified, trained plant personnel of facility equipment, exposed source materials and process unit areas to ensure that all elements of the SPPP are in place and working properly. Inspection records that include the following are kept onsite for at least five years: date of inspection; location of problem(s) identified; steps taken to correct problem(s) and prevent recurrence; and inspector's names and title. In addition inspection records are required for any incidents that result in leaks or accidental discharges, and any failures or breakdowns of structural

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 5 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc		Reason for Change: Update

BMPs. These inspection requirements are primarily met through the following practices currently in place:

- Routine DPCC inspections by process unit operators in all areas containing NJ hazardous substances, including process, storage and transfer areas, with inspection records maintained in process unit DPCC logbooks.
- Routine housekeeping inspections of process units by Bayway Refinery Shift Superintendents and Infineum management.
- Routine process unit and waste management area audits by Environmental Team personnel.
- Routine safety audits of process unit operations and work activities by refinery management personnel, with audits documented in a safety database management program.
- Environmental reports by Bayway Refinery Shift Superintendents and Infineum Shift Team Leaders documenting each release or spill of a NJ hazardous substance, with 30 day confirmation letters to the NJDEP by the Environmental Team when required by regulation.
- Quarterly inspections by Environmental Team personnel of stormwater management devices that handle stormwater that discharges to surface waters (e.g., tankfield oil/water separators, storm sewer catch basins, and storm sewer outfalls) with the intent of inspecting all of these facilities at least once per year.

Annual Inspections


In accordance with NJ0026671, Part IV, an annual inspection is conducted and annual inspection results reported by November 30 of each year. The annual inspection evaluates areas within the Bayway Refinery and Infineum WSCP that discharge stormwater authorized under NJ0026671 to determine whether the SPPP has prevented or reduced exposure of source materials to stormwater, whether the SPPP is being properly implemented, and whether additional controls or BMPs are needed.

Evaluation Process

The SPPP will routinely be evaluated for effectiveness by reviewing inspection and monitoring results as they become available. Inspection and monitoring results analysis will consider any flaws that may have developed and maintenance that may be required. The routine evaluation will also include review of proposed projects and facility modifications for consistency with SPPP requirements. Results of the evaluation process will be reflected in required SPPP Annual Reports and Certifications, as appropriate.

I. Site Specific BMPs

Building Drains

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 6 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	


All known building drains to storm sewers from buildings which may have exposure to NJ DPCC hazardous substances have been plugged, including the Storehouse, Maintenance Shops and Garage. The Bayway Office Building and Oil Movements Control Center Annex have building drains to the storm sewers that may drain condensate from steam use (e.g., heating systems), but the condensate is minimal in amount and generally evaporates before reaching the storm sewer. Most buildings with rest room and locker room facilities maintain drains to the sanitary sewer system for domestic sewage and washwater from these areas.

Equipment Maintenance and Repairs

The Bayway Refinery maintains a fleet of vehicles primarily used within the refinery, including cars, trucks, cranes and construction equipment (e.g., bulldozers, front end loaders). These vehicles are maintained at an onsite garage operated by refinery personnel. DPCC Plan Section 6.3 addresses the garage and other equipment maintenance buildings. Following are BMPs in place at the garage:

- The garage is an enclosed structure with plugged floor drains, thus serving as secondary containment for any spills or leaks.
- Used oil from the garage is managed in accordance with Used Oil regulations. Oil filters are drained prior to disposal. A used oil tank is located outside the garage in a paved area that drains to the process sewer. Collected used oil is recycled for refinery processing.
- Residuals that are not recycled are disposed in accordance with applicable waste regulations. This includes greasy rags, oil filters, air filters, batteries and coolant. Waste disposal is coordinated by personnel trained in proper waste management.
- All supplies are ordered through SAP, a computerized purchasing system that facilitates inventory management.
- Good housekeeping practices include prompt transfer of fluids to proper containers, not leaving drip pans full, and cleaning up any spills or leaks promptly.
- Garage employees are trained on proper waste control and disposal procedures applicable to their activities.
- Vehicles are maintained on a routine schedule to ensure proper operation.

The Bayway Refinery also has Mechanical Shops for machinery repair. There are no active drains to the condenser sewer within the building. Machinery is drained before being transported to the shops. However, the Mechanical Shops area has a covered outdoor containment area that is used to clean equipment if necessary. Any cleaning solutions are contained within a concrete sump within the covered containment area. Vacuum trucks are used to remove any collected material for discharge into the refinery slop oil system. Wastewater that separates in the slop oil system is treated at the WWTP. Oil that separates is recovered for refinery processing.

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 7 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

Infineum WSCP also has shops for mechanical repairs. There are no drains to the condenser sewer within the shop buildings. Machinery is drained and cleaned, if necessary, elsewhere in a concrete-paved area draining to the process sewer before being transported to the shops.

Any equipment that has to be maintained in place is generally within secondary containment by default. Additionally, most critical rotating equipment in the refinery has a backup that allows routine and preventive maintenance to be performed without having to shutdown a process unit. Procedures based upon OSHA requirements and industry standards, as documented in the Bayway Refinery's Safe Working Procedures Manual and Infineum's HSE Manual, are followed when equipment has to be drained and isolated to allow repair in place or equipment removal. Any cleaning solutions that are used are discharged to the process sewer or contained and removed for subsequent treatment at the WWTP.


Vehicle and Equipment Fueling and Spills

Bayway Refinery maintains a gasoline pump station for refueling of onsite company and contractor vehicles. The pump station is continuously manned and monitored by security personnel when in use. Spill response materials are kept in the area, which also drains to the process sewer. Infineum WSCP uses a parked tank truck, which stores both diesel fuel and gasoline, to dispense fuel for onsite company cars and trucks. The truck is parked on secondary containment that drains to the process sewer and is operated only by personnel trained specifically for that job. Powered Infineum maintenance equipment, such as cranes, front-end loaders, etc, is refueled in process areas or roadways draining to the process sewer. Linden Terminal operates a truck loading rack. Additionally, there are numerous truck loading and unloading areas throughout the operating units. Truck transfer locations include locations commonly used by vacuum trucks to recover slop oil (e.g., WWTP facilities). Secondary containment, operating procedures and spill response are addressed fully within the DPCC/DCR Plan, FRP, process unit operating manuals, and Safe Work Procedures Manual, including but not limited to the following references:

- DPCC Plan Sections 6.2 (process areas) and 6.3 (non-process areas) address containment and operating procedures applicable to transfer locations by refinery unit.
- DPCC Plan Section 6.5 addresses containment and standard procedures for truck loading and unloading areas. In general, loading and unloading of trucks is conducted by the truck driver, who may be assisted by refinery personnel depending on the operation and location.
- DPCC Plan Section 6.9 addresses inspection of equipment. Refinery personnel conduct routine visual inspections and maintain DPCC logs for their areas of responsibility.
- DPCC Plan Appendix C identifies permanent truck loading and unloading locations by unit, location, material and truck capacity.

For Infineum, information on vehicle fueling, loading/unloading, secondary containment and spills can be found at:

- DPCC Plan Section 6 addresses secondary containment of transfer locations by area.

	<p align="center">Water Programs and Procedures Manual</p> <p align="center">Stormwater Pollution Prevention Plan (SPPP)</p> <p align="center">Section VI: BMP Selection and Plan Design</p>		<p align="right">Page 8 of 19</p>
<p>Revision: 8</p>	<p>Date of Last Revision: February 17, 2020</p>	<p>Approved By: <u>Reval.doc</u></p>	
<p>Retention Code: CG01</p>	<p>Written/Reviewed By: Principal Env. Engineer (Water) / <u>Reval.doc</u></p>	<p>Reason for Change: Update</p>	

- General Procedures Manual standard procedures for railcar and tank truck loading and unloading areas. In general, loading and unloading of trucks is conducted by the truck driver, who may be assisted by Infineum personnel depending on the operation and location. Railcars are always loaded and unloaded by Infineum personnel.
- DPCC Plan Section 6 addresses inspection of equipment. Infineum personnel conduct routine visual inspections and maintain DPCC logs for their areas of responsibility.
- DPCC Plan Appendix C identifies permanent truck loading and unloading locations by area, material and truck capacity.


Together, the above references also cover the NJ0026671 BMP requirements for vehicle and equipment fueling and spills, which include: containment; standard operating procedures; training; inspections; and proper equipment. Spill response requirements are addressed earlier in this SPPP Section.

Material Handling: Liquid Storage and Containment, including Fueling Tanks

Proper storage and containment of liquids (i.e., NJ DPCC hazardous substances), are addressed fully within the Bayway Refinery DPCC and SPCC Plans, including the following sections:

- DPCC Plan Section 6.4 addresses secondary containment for above ground storage tanks that are 2,000 gallons and larger, and drum and tote storage areas.
- DPCC Plan Section 6.5 addresses secondary containment for truck loading and unloading areas.
- DPCC Plan Section 6.6 addresses piping inspection, labeling and maintenance.
- DPCC Plan Section 6.7 addresses permeability where soil is relied upon for secondary containment of storage tanks.
- DPCC Plan Section 6.9 addresses leak detection and monitoring of equipment, including piping and storage tanks.
- DPCC Plan Section 6.11 addresses job-required training.
- SPCC Plan Sections 1.6 and 1.7 address containment of bulk storage containers between 55 and 2,000 gallons in capacity, oil-filled electrical transformers, portable fuel tanks (e.g., to fuel portable pumps and electrical generators for repairs in remote areas), and a fuel truck used by the refinery to refuel fuel tanks (including portable fuel tanks and vehicles that may run out of fuel).

Similarly, the above topics are covered in Infineum's DPCC Plan Section 6.

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 9 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

Together, the above references also cover the NJ0026671 BMP requirements for liquid storage, handling and containment, which include: maintain good integrity of all storage tanks; inspect storage tanks and piping; and train employees on proper filling and transfer procedures.

Material Handling: Containerized Material Storage


Proper storage and use of containerized materials (i.e., NJ DPCC hazardous substances) are addressed fully within the DPCC Plans, process unit operating manuals, and Bayway Refinery's Safe Work Procedures Manual (HSE Manual from Infineum), including but not limited to the following references:

- Drum storage is addressed by refinery area within Bayway Refinery's DPCC Plan Sections 6.2 (process areas) and 6.3 (non-process areas) and for the WSCP within Infineum's DPCC Plan Section 6.
- Bayway Refinery DPCC Plan Appendix C identifies drum and tote storage areas by unit, location and material.
- Bayway Refinery DPCC Appendix D and Infineum DPCC Plan Appendix C list DPCC NJ hazardous substances that may be stored onsite, the storage container type (e.g., drum, tote), and maximum gallons stored.
- Process Unit Operating Manuals address proper handling of chemicals by unit, including materials with special requirements (e.g., LPG, ammonia, peroxides).
- Online MSDS systems are maintained on the Bayway intranet for ready access by refinery and Infineum personnel including all onsite chemicals, covering proper handling, storage and spill response procedures.
- Material records are managed through SAP, a computerized purchasing software program used throughout the refinery for material purchases.
- Bayway Refinery DPCC Plan Section 6.11 and Infineum DPCC Plan Section 6 address job-required training.
- Drum and tote labeling in accordance with Right-To-Know requirements

Together, the above references also cover the NJ0026671 BMP requirements for containerized material storage and handling, which include: safe, secure storage; labeling and recordkeeping; and training employees on proper use, storage, cleanup and disposal procedures.

Discharge of Stormwater from Secondary Containment


The disposition of stormwater contained within storage tank secondary containment areas at the Bayway Refinery depends on the tankfield, with each tankfield containment area addressed in detail in the DPCC Plan. In general, some tankfields can only drain to the process sewer, some tankfields drain

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 10 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

to surface waters through oil-water separators, some tankfields can discharge either to the process sewer or condenser sewer depending upon the water quality, and some tankfields can only discharge to surface waters without passing through an oil-water separator. The following are BMPs in place for all tankfields:

- All above ground storage tanks have containment and/or diversion capacity in accordance with DPCC requirements, as documented in the DPCC Plan.
- Earthen containment areas meet DPCC impermeability requirements and include stone, rip rap or other material to protect earthen berms from erosion.
- All above ground storage tank containment areas that can discharge to surface waters have containment valves. Valves are normally closed except when opened for drainage.
- Prior to discharging stormwater from a storage tank containment area to surface waters, operators check the water for sheen and advise the Head Pumpman, who logs when tankfields are being drained.
- All tankfields that can drain to surface waters are protected by oil-water separators (i.e., Tremley, Forty Acres and Rahway River Tankfields) except for the following, where containment and procedural BMPs are used to protect surface waters in accordance with DPCC Plan Section 6.3:
 - Tanks 238 and 242 drain to a sump where an operator must operate pump P-3 to pump the water to the Dam 2 condenser sewer. P-3 is locked or sealed closed when not in use.
 - Eleven tank containment areas within the Gasoline Component Tankfield drain to a sump where an operator must operate pump P-2 to pump the water either to the process sewer or the Dam 2 condenser sewer.
 - Five tank containment areas within the Gasoline Component Tankfield drain to a sump where an operator must open a valve either to the 3TE sewer to Moses Creek or to the process sewer. The discharge to the 3TE sewer will be protected by an oil spill baffle installed in an open part of the sewer system.
 - The Diesel Tankfield containment area drains to Moses Creek through S2. The outlet box for the Diesel Tankfield sewer includes an under/over flow weir for additional oil containment capacity during stormwater discharge. The discharge valve is kept closed when not discharging stormwater.
 - The No. 4 Pumphouse and Domestic Trade Tankfield containment areas drain to a sump where an operator must operate a pump to pump the water either to the process sewer or to the Dam 2 condenser sewer.

Tankfield containment areas that can only drain to the process sewer include the Blending, Greater Elizabeth, Waterfront Tankfields, and Infineum storage tanks. Regardless of the stormwater disposition though, all storage tanks are routinely visually inspected in accordance with DPCC regulations for leaks.

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 11 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

Wash Water and Wash Areas, Including Vehicles and Equipment

The Bayway Refinery has several permanent locations that are used to wash equipment and vehicles. These locations all discharge to the process sewer system and include the following:

- An indoor car wash for use by onsite company and contractor vehicles.
- An outdoor area near the car wash where vehicles can also be hosed off.
- A concrete containment heat exchanger cleaning pad near the intersection of Morses Mill Road and Union Avenue.
- A concrete containment heat exchanger cleaning pad near the Garage area.
- A concrete pad where trucks can wash off to the process sewer near the Garage area.

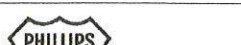
Pressure washing is only done if wash water can be contained. Wastewater from hydroblasting must be collected and treated or disposed properly.

Infineum cleans process equipment and washes vehicles only in concreted areas draining to the process sewer.

Scrap Metal Accumulation/Transport

When necessary, Bayway Refinery temporarily accumulates scrap metal outdoors. Scrap metal can be in all forms, ranging in size from cans up to the dismantled sections of process unit facilities, structural steel, and storage tanks. Following are BMPs generally applied to all scrap metal:

- All metal must be cleaned free of residuals before being transported offsite or to a temporary onsite accumulation area. Metal containers must be opened and cleaned prior to delivery to an onsite accumulation area, offsite disposal or reuse. All cleaning must be in containment areas that drain to the process sewer. Because of the damage that metal imparts on roll-offs, and because only cleaned metal is transported, old roll-offs without covers are used to accumulate metal prior to transport offsite or to an onsite accumulation area.
- Ferrous and non-ferrous scrap metal, wire and cable intended to be recycled/sold will be properly separated for recycling purposes (e.g., copper and alloy steel materials are intended to be separated from steel for recycling purposes).
- Non-metallic materials such as trash, wood, paper, concrete and rubble are not to be mixed with scrap metal intended for onsite accumulation or offsite transport (insulation on clean piping is an exception).
- Larger metal structures will generally be removed from site upon dismantling by a scrap recycling contractor rather than accumulated in a temporary storage area prior to offsite

	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 12 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

transport. At times, other metal will also be loaded directly into vendor supplied bins for recycling rather than being accumulated onsite prior to offsite transport.

- Any temporary onsite scrap metal storage awaiting offsite transport will be located within a waste management area inspected weekly by a member of the Bayway Refinery Environmental staff.
- No hazardous waste material is allowed to be stored in an area accumulating scrap metal for offsite transport.


Infineum WSCP scrap metal is also stored outdoors in convenient locations. The following BMP's are generally followed for Infineum scrap metal:

- All metal must be cleaned free of residuals before being transported offsite or to scrap metal storage areas. Metal containers must be opened and cleaned prior to delivery to the scrap areas.
- All cleaning must be in containment areas that drain to the process sewer. Because of the damage that metal imparts on roll-offs, and because only cleaned metal is transported, old roll-offs without covers are used to accumulate metal prior to transport to the scrap yard.
- Scrap metal with flaking rust coatings will either be covered or stored in concreted areas draining to the process sewer
- Larger metal structures will generally be removed from site upon dismantling by a scrap recycling contractor rather than stored in a scrap area. At times, other metal will also be loaded directly into vendor supplied bins for recycling rather than being accumulated in the scrap areas.
- Scrap metal areas are inspected monthly by a member of the Infineum Maintenance staff.
- No hazardous waste material is allowed in the metal scrap areas.

Roll-Off Management

The use of roll-offs for waste management is discussed in DPCC Plan Section 6.3 and online at Bayway Refinery's intranet. The following are general requirements that apply to roll-offs:

- Personnel loading or unloading a roll-off will check the immediate area before and after moving the roll-off to ensure that material was not spilled. In the event of a solid or liquid release before or after moving a roll-off, Bayway personnel will be advised before leaving the area.
- Roll-offs are required to have liners and sealed back gates with the exception of roll-offs used for clean metal scrap, clean scrap wood, office trash and recyclables, including plastic residual being recycled. Bayway Refinery practice is to use older roll-offs for clean scrap metal because of the damage large metal pieces inflict on roll-offs during loading and unloading.
- Roll-off liners are required to be compatible with the material being handled.

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 13 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	


- Roll-offs are required to be covered except when being loaded or unloaded with the exception of roll-offs not requiring covers as identified above (e.g., clean metal scrap, non-oily plant debris, lumber, bagged household refuse, recyclables). Heavy duty tarps with bowed supports or equivalent will be used when covers are required, with covers properly secured when not being filled or unloaded
- Roll-offs used for hazardous and non-hazardous waste management are required to be labeled accordingly, including an accumulation start date.
- Roll-offs in use or awaiting hauling will be visually inspected for seepage or leakage on at least a weekly basis.
- When roll-offs in unusable condition are observed, they will be removed from service. This will include leaking roll-offs. Out of service roll-offs will not be covered. Out of service roll-offs will be labeled or located in an area limited to out of service equipment until they are removed from the site.
- Roll-offs will be staged for sampling, if necessary, to determine disposition.

The use of roll-offs for waste management in the Infineum WSCP is discussed in Section 6 of Infineum's DPCC plan and in Infineum Standard Operating Procedures.


- Roll-offs containing hazardous waste are required to have liners and sealed back gates. These roll-offs are required to be covered except when being loaded or unloaded.
- Roll-offs containing hazardous waste are located in areas draining to the process sewer and are required to be labeled accordingly, including an accumulation start date.
- Liners, when used, are required to be compatible with the material being handled.
- Except for roll-offs containing clean scrap metal, clean scrap wood, and office trash, roll-offs located in areas draining to the stormwater sewer are inspected for seepage or leakage on a weekly basis. Leaking roll-offs will be removed from service.

Waste Management (e.g., dumpsters, drums, totes, polypropylene residual and garbage)

Residuals and waste materials are handled, stored, transported and disposed or recycled in accordance with applicable regulations, including solid waste and hazardous waste requirements. Waste management procedures are documented and accessible by personnel on company intranets. In addition to the waste management procedures already addressed (e.g., scrap metal and roll-offs), examples of onsite procedures in place to ensure compliance with waste management procedures, and which thus also minimize or eliminate potential exposure to stormwater runoff to surface waters include the following:

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 14 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc		Reason for Change: Update

- All residual/waste hauling for offsite disposal is conducted by licensed contractors. Only licensed disposal sites are used.
- Dumpsters remain covered when not being loaded or unloaded, and are required to be in good working condition free of compromises to their integrity (e.g., holes, gashes), except as noted elsewhere.
- Drums and totes that are empty but not yet cleaned (i.e. contain residual) are stored in a similar manner to full containers in approved DPCC or Waste Management Areas. Empty drums and totes are kept closed with bung plugs in place and are removed from operating areas by the Mechanical Environmental group upon operator request. Upon removal, the exterior is checked for leaked materials. Empty drums and totes are then collected and placed on the RRS/Tk 202 cleaning pad which drains to the process sewer, and are cleaned by washing with high pressure water. Drums are turned upside-down and allowed to drain. The drums and totes are collected by a third-party company for recycling. As an alternative, clean empty drums may be crushed and stored in a roll-off prior to recycling as scrap metal.
- Infineum drums containing residuals are collected in a paved area and drained as much as practical to the process sewer. Used drums are then shipped offsite for recycling.
- Drums for routine waste containment are kept in contained satellite accumulation areas or contained storage areas. Drums must be labeled indicating their contents and lids must be secure. The Refinery's Mechanical Environmental group removes drums to a centralized waste management area upon operator notification. The Infineum Waste Coordinator arranges for offsite waste disposal.
- Waste containing drums are stored in containment areas prior to shipment offsite. The following are onsite procedures that apply to drums containing waste:
 - Wastes are kept in drums that have secure lids (except when being sampled or when wastes are being added), are visually intact and leak free.
 - Drums containing incompatible waste streams are separated.
 - Hazardous and non-hazardous waste containing drums are labeled and separated.
 - Satellite accumulation and waste drum storage areas are inspected weekly with refinery inspections documented in the Drum Inspection Logbook maintained in the Mechanical Environmental Section Office. Infineum utilizes a datalogger system to record weekly inspections.
- Cathode Ray Tubes are collected separately for recycling and not disposed as waste.
- Used tires are managed separately from other waste.
- When required, asbestos removal is by licensed personnel in accordance with applicable regulations. Asbestos removed for disposal is stored separately in roll-offs.
- Vacuum trucks are not stored overnight outside containment areas unless empty.

	<p align="center">Water Programs and Procedures Manual</p> <p align="center">Stormwater Pollution Prevention Plan (SPPP)</p> <p align="center">Section VI: BMP Selection and Plan Design</p>		<p align="right">Page 15 of 19</p>
<p>Revision: 8</p>	<p>Date of Last Revision: February 17, 2020</p>	<p>Approved By: Reval.doc</p>	
<p>Retention Code: CG01</p>	<p>Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc</p>	<p>Reason for Change: Update</p>	

- Polypropylene residual will only be managed at contained waste management areas (e.g., Polypropylene pellet separator and vacuum truck solids bay areas) and will not be stored outside of closed or covered containers on earthen surfaces exposed to wind.

Concrete and Asphalt Rubble Management

In the refinery, virgin and clean concrete are managed similarly to but separately from excavated concrete. Excavated concrete is managed in accordance with NJDEP guidance and the following procedures:

- All excavated concrete is moved to a staging area.
- Generally annually, excavated concrete is broken into smaller pieces (e.g., twelve inches and smaller) and metal is removed, before crushing the concrete further into smaller pieces (e.g., two inches and smaller)
- Crushed concrete is staged in piles for onsite recycling.
- Excavated concrete is sampled in accordance with NJDEP guidance for contaminant analysis. Concrete that tests clean can be used onsite for fill, rip rap, road sub-base and similar uses. Excavated concrete that does not test clean is separated for disposal.
- Virgin and clean asphalt are managed similarly to but separately from excavated asphalt. Asphalt is removed to a staging area where it is run through a crusher and sorter to reduce its size and sift out debris. Excavated asphalt is then staged in a pile for onsite recycling.


The concrete and asphalt staging area is located by the Diesel and Tremley Tankfields. Drainage controls will be evaluated and implemented as discussed in SPPP Section VII.

In the Infineum WSCP, virgin and excavated concrete and asphalt are handled in the same manner. If they are located in an area draining to the stormwater sewer, they are required to be covered unless material is being added or removed. The concrete and asphalt waste is disposed in appropriate landfills.

Excavated Soil Management

Any soil that must be excavated for construction, maintenance or emergency response reasons is handled in accordance with the NJDEP requirements. General requirements include the following:

- Visually contaminated soil is separated for analysis. Visually clean soil can be returned to the excavation.
- Visually contaminated soil is placed on plastic and either removed to a staging area for analysis or covered with plastic if left in place.

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 16 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc		Reason for Change: Update

- Excess soil that can not be returned to the excavation is removed to a staging area for analysis.
- Drainage from staging areas will be controlled either by haybales, silt fences, plastic covers or by ponding stormwater (e.g., by staging soil in empty tank containment areas that are not drained).
- Any soil that is not returned to the excavation is tested for hazardous waste constituents and re-use parameters. Soil disposition will depend on the analysis results. Soil that tests cleaner than residential soil clean-up criteria can be re-used onsite without NJDEP approval.

Excess soil that is generated as part of a spill response is handled separately from excavations required for construction, maintenance or inspection.

All soil excavated by Infineum, whether for construction, maintenance, inspection or spill response, is tested to determine its RCRA classification (RCRA non-hazardous or hazardous waste). It is then disposed offsite, as appropriate.


Excavation Dewatering

Groundwater within a large portion of the overall site has been characterized by ExxonMobil as exceeding one or more applicable groundwater criteria. When excavations are required for construction, maintenance or emergency response, dewatering may be required. Following are BMPs used onsite to control groundwater infiltration when excavation dewatering is required:

- Groundwater is not discharged to a condenser/storm sewer. This includes tankfield storm sewers that do not discharge to the onsite wastewater treatment plant (e.g., tankfield sewers)
- Groundwater can be discharged to a process sewer or collected in a container for subsequent discharge to the process sewer.
- Excavations in remote areas (i.e., without access to the process sewer) can discharge oil-free water to land in the vicinity of the excavation provided the groundwater infiltrates and does not run offsite or to surface waters. Any oil that may be present on top of the groundwater has to be controlled or removed before discharging oil-free groundwater to grade.

Road Salt and Sand

Due to their size, outdoor facilities, and continual operations, Bayway Refinery, Linden Terminal and Infineum WSCP must be prepared to maintain safe accessways in all weather conditions, including snow and ice. To ensure safe driving and walking conditions, in addition to snow removal, salt and/or sand may need to be applied at times throughout the refinery. Bayway Refinery, Linden Terminal and Infineum WSCP rely upon both employees and contractors for snow removal and salt/sand application. Road salt is stockpiled indoors (but could also be located outdoors if properly contained and covered with tarp when not in use to prevent salt from being blown away or washed away by stormwater). Salt is generally not applied until required to prevent slippery conditions. Sand is generally only used in isolated, problem areas (e.g., areas that pond). In accordance with NJDEP guidance, de-icing agents

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 17 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc		Reason for Change: Update

are used in accordance with manufacturer's instructions as needed for safety purposes. This includes surfaces that can drain to the reservoirs (e.g., Brunswick Avenue), Linden storm sewer (e.g., BOB paving and sidewalks), Morses Creek (e.g., paved refinery streets and walking surfaces), Rahway River (tankfields and railcar unloading rack), and the Arthur Kill (e.g., docks and SWPS paving).

Herbicide/Pesticide Application

All herbicide and pesticide applications are conducted by contractors in compliance with applicable regulations. Herbicides typically used onsite for weed and vegetation control in developed areas are consistent with those previously provided to the NJDEP. Herbicides will in no case be sprayed within the banks of stormwater containment basins that discharge directly to surface water. Any need for mosquito control is addressed by contacting the county mosquito control agency.

Site Security

Site security is addressed in Bayway Refinery DPCC Plan Section 6.12 and SPCC Plan Section 1.8. In general, site security requirements meet or exceed DPCC and SPCC requirements.

Floating Residual Management


Floating residual containment and recovery is managed throughout the site using dams, baffles, spill booms, absorbents, vacuum trucks, skimmers, and other equipment. The need for removal and removal methods depend on quantity and type of collected material. Recovered solids are managed for offsite disposal. Recovered liquids are managed similar to other onsite liquid residuals depending on content. Following are established floating residual containment locations and applicable procedures within the site.

Fresh water reservoirs (refinery water supply) upstream of Dam 2:

- In general order of occurrence, source materials include but are not limited to floatables, biological material (e.g., leaves), scum (biological or manmade), sheen (e.g., road runoff), and floating oil.
- Sources are generally offsite runoff from Peach Orchards Creek and West Brook.
- Booms are used to collect materials upstream of water diversion pumps.
- Booms are checked daily

Tremley, Poly and Railroad Avenue Ditches:

- Source materials include but are not limited to scum/foam (biological or manmade), floatables (including polypropylene residual in Railroad Avenue Ditch), biological material (e.g., leaves and grass, primarily in Tremley Ditch), sheen (e.g., road runoff, historical sources, equipment leaks), and floating oil (e.g., equipment leaks, and possibly process sewer overflows into Poly and Railroad Avenue Ditches).
- Sources are generally onsite, but Poly and Railroad Avenue Ditches can also receive offsite source materials from Arthur Kill intake (e.g., scum, foam).
- Low level overflow dams in each ditch maintain a water level needed for booms to be effective. (Dams may have to be lowered at times to accommodate upstream maintenance.)

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 18 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: Reval.doc	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / Reval.doc	Reason for Change: Update	

- Booms are used to contain materials upstream of the ditch discharges into Morses Creek, supplemented by absorbents when appropriate.
- Ditches are checked each shift by operators and supervisors.

Tremley, Diesel, Forty Acres and Rahway River Tankfield Oil-Water Separators, and Dam 2 Sewer Skim Box:

- Source materials include but are not limited to scum (biological or manmade), biological material (e.g., leaves, grass), sheen (e.g., road runoff, equipment leaks), floating oil (e.g., equipment leaks), algae, and floatables.
- Sources are generally onsite, but Dam 2 Sewer Skim Box can also receive offsite source materials from Arthur Kill intake (e.g., scum).
- Valves, discharge pipes with downturned elbows at the upstream end, and/or baffles are used for containment.
- Separators are checked each shift by operators.

Morses Creek:

- Source materials include but are not limited to scum/foam (biological or manmade), floatables, biological material (e.g., leaves, grass), sheen (e.g., road runoff, historical sources, equipment leaks), and floating oil (e.g., equipment leaks, process sewer overflows).
- Sources can be historic (e.g., oil seeps), onsite and offsite (e.g., Arthur Kill intake water, Dam 2 overflow, and NJ Turnpike runoff).
- Dam 1 (controlling Morses Creek water level) in combination with underflow baffles and booms provides containment for onsite and offsite sources.
- Morses Creek is checked each shift by operators and supervisors.


Absorbent and Boom Management:

- Contained material removal is based on amount and type of material.
- When needed, vacuum trucks and/or absorbents are used to recover oil/sheen/scum.
- Absorbents are used to supplement booms and/or in areas without booms where sheen can collect (e.g., tankfield separators, Dam 2 condenser sewer skim box) to enhance containment and recovery of oil and sheen
- Condition of absorbents is checked at least weekly for removal and replacement, if needed.
- Condition of booms is checked each shift by operators and supervisors.
- At locations where vacuum trucks are used, absorbent use may be reduced to a level that does not interfere with skimming.

Settled Sludge Management:

The need for settled sludge management can occur in waterways throughout the site, including ditches, stormwater separators, reservoirs and Morses Creek. There are no defined routine sludge removal requirements for these facilities. The need for settled sludge removal will be based on facility performance, visual observations and effluent quality (where applicable), in accordance with the following:

- Process operator input (e.g., observations, logs, data)

 Bayway Refinery	Water Programs and Procedures Manual Stormwater Pollution Prevention Plan (SPPP) Section VI: BMP Selection and Plan Design		Page 19 of 19
Revision: 8	Date of Last Revision: February 17, 2020	Approved By: <u>Reval.doc</u>	
Retention Code: CG01	Written/Reviewed By: Principal Env. Engineer (Water) / <u>Reval.doc</u>	Reason for Change: Update	

- Visual observations conducted as part of the quarterly SPPP inspections and documented within the quarterly SPPP inspection report for the tankfield oil-water separators and discharge ditches.
- The need for settled sludge removal from the reservoirs will be based on sludge build-up measurements in the vicinity of the withdrawal pumps, quality of pumped water received at the onsite water treatment plants, and pump capacity.

Road Maintenance

The need for road maintenance (paved and unpaved surfaces) is planned annually. This includes repair of potholes and grading stoned surface areas. Repairs are managed through the refinery work planning process. Priority for repairs is based on safety, vehicular volume and road surface condition, as well as potential for impact on receiving waterbodies.



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March 3, 2020

NJPDES Permit NJ0105104
Program Interest ID #46318
Inspection Report Response

New Jersey Department of Environmental Protection
Central Bureau of Water Compliance and Enforcement
Mail Code 44-03/PO Box 420
401 East State Street
Trenton, NJ 08625-0420
Attn: Andrew Coleman

Dear Mr. Coleman:

On January 29, 2020, we received your Compliance Evaluation Inspection report (CEI Report) dated January 23, 2020 for NJPDES DGW Permit No. NJ0105104, Program Interest ID # 46318. The CEI Report listed two deficiencies, with a response due by March 8 (45 days from the January 23 letter date). This letter and its attachment contain responses to the CEI Report deficiencies, including remedial measures with implementation timing where appropriate. Also attached in response to the CEI Report are the revised sections of the Ground Water Pollution Prevention Plan for NJDEP's review, as requested. Please contact George Bakun at george.bakun@p66.com or (908) 523-5896 if you have any questions regarding the responses.

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for purposely, knowingly, recklessly, or negligently submitting false information.

A handwritten signature in purple ink that reads "Hope Gray".

Hope Gray
Bayway Refinery HSE Manager

c: Murray Lantner
USEPA Region 2
Water Compliance Branch
290 Broadway, 20th Floor
New York, NY 10007

Bayway Refinery
January 23, 2020 Compliance Evaluation Inspection (CEI) Report
NJPDES discharge to Groundwater Permit NJ0105104: Program Interest ID #46318

January 23, 2020 CEI Report Deficiencies

Deficiency # 1: (repeated herein for reference)

Insufficient maintenance of the Tremley Tank Farm oil/water separator ("TTF Separator") to prevent a groundwater discharge (designated J01) of pollutants. This writer inspected the TTF Separator on June 12, 2019 and observed floating weathered oil on the surface. Thousands of small balls fill this separator, many of which were visibly oil stained. The banks of the separator were stained black. A strong petroleum odor emanated from the separator. A representative of P66 confirmed that the weathered oil was not recent.

This writer returned to inspect the TTF Separator on October 29, 2019 and January 8, 2020 and noted similar deficiencies, though less free-floating oil was observed, and the petroleum odor was less noticeable. According to a representative of P66, this separator had been visited and skimmed at a greater frequency by vacor truck since the June 12 inspection.

The TTF Separator is reportedly lined with manufactured clay. Though this clay should be impermeable, P66 should still conduct periodic maintenance of the separator to remove solids and sludge (that may contain emulsified oil) that might be trapped on the bottom. Furthermore, P66 should remove the oil staining on the banks of the separator, and continue to regularly skim the surface when sheen (or floating oil) is visible. By doing so, P66 reduces the possibility of pollutants discharging to the groundwaters (and the surface waters for that matter) of the State.

Further review of your Ground Water Protection Program ("GWPP") did not show any maintenance procedures. P66 has a fleet of vacor trucks that operate daily on its property, with means to accept and treat oily waste on site.

Furthermore, P66 operates three other oil water separators, including the Rahway River Separator 1 (J01), Rahway River Separator 2 (J02), the Forty Acres Tankfield Separator (J03) under this NJPDES DGW Permit with similar characteristics to the TT Separator. Though these separators are not visibly contaminated with oil, P66 must extend its GWPP to include periodic maintenance for them as well.

P66 is hereby REQUIRED to add maintenance BMPs to its GWPP Plan for each of its four oil/water separators in this Permit. The revised GWPP Plan should be sent to this writer for review within 45 days of the date of this report.

Response to Deficiency # 1:

First, there are several points in NJDEP's above comments that were previously addressed by Bayway in response to NJDEP's CEI Report for Bayway's stormwater NJPDES Permit NJ0026671, including skimming the separator basin, addressing oil stained banks, and removing settled sludge. For reference, we reiterate the following actions proposed by Bayway:

- Regarding floating oil within the separator basin: Bayway will skim the separator at least twice per week with a vacuum truck when there is a visible floating oil layer. Bayway may apply hot water to the separator to enhance mobility of the floating oil trapped between the balls and improve skimming. Once weather turns warmer and floating oil viscosity decreases (e.g., May), if floating oil is still present, Bayway will attempt to use a drum skimmer in the separator as a trial to see if skimming of oil trapped between the floating balls improves. Skimmers will plug under current conditions and may still need the application of hot water to enhance floating oil skimming during warmer weather depending on the viscosity of the floating oil.
- Regarding sheen in the separator outlet chamber: Bayway will maintain and replace absorbents in the outlet chamber on a weekly schedule as long as sheen is present.
- Regarding stained concrete walls: Bayway will wait for warmer weather (e.g., May) before trying to hot water wash the stained areas. Pressure jetting is not recommended because of the age and unknown condition of the concrete. Any staining that does not come off with hot water washing in warm weather will be considered to be immobile, contained and as presenting no environmental impact risk.
- Regarding stained earthen/stoned banks: Bayway will wait for warmer weather (e.g., May) before applying hot water over the stained areas. Pressure jetting should not be used as it will erode the stone and clay unnecessarily. Any staining that does not come off from hot water washing in warm weather will be considered to be immobile, contained and as presenting no environmental impact risk.

Bayway also added Best Management Practices (BMPs) to its Stormwater Pollution Prevention Plan (SPPP) addressing settled sludge management. As documented in the SPPP BMP, the need for settled sludge removal will be based on facility performance, visual observations and effluent quality, as applicable. As background, settled sludge removal has occurred from the stormwater separators in the past but it is not a routine activity because there generally is not a noticeable build-up of sludge affecting the separator operation or effluent quality. One of the reasons for the limited settled sludge buildup is the normally closed upstream containment valves that limit flow volume and rate into the separators at any one time.

In support of this settled sludge management approach, which is similar to that used to manage process oil-water separators, we reviewed separator effluent Total Suspended Solids (TSS) and Total Petroleum Hydrocarbon (TPH) data. As seen in the following table, there has been no degradation in TSS effluent quality at the three separators located in the Forty Acres and Rahway River Tankfields since the start of data collection required by the current NJPDES NJ0026671 permit. With only one TSS sample collected to date from the Tremley Tankfield separator, we do not have a similar data comparison but note that the TSS result was similar to the long term average for the other three separators. There has also been no impact on the separator effluent TPH data at any of the four locations with all TPH results below detection since 2019.

Separator Location	No. of TSS Samples Since 2007	Long Term TSS Average Since 2007 (mg/l)	No. of TSS Samples Since 2019	TSS Average Since 2019 (mg/l)
Forty Acres Tankfield	54	21	4	12
Rahway River East	52	13	4	12
Rahway River West	51	11	4	8
Tremley Tankfield	1	14	1	14

Lastly, NJDEP requires submittal of a revised GWPP Plan that contains maintenance BMPs. In response, we remind NJDEP that facilities at the Bayway Refinery site are regulated through multiple NJPDES permits, including NJ0001511, NJ0026671 and NJ0105104. Each one of these permits may contain some unique requirements but the facilities are the same nevertheless. In addition, these facilities are also regulated by other NJDEP and federal programs. As a result, Bayway has multiple plans in place to meet the applicable regulatory requirements and rules allow plans to be used to meet different rule requirements by reference rather than by repeating them. As NJDEP knows, the stormwater separators already have applicable BMPs addressed in Section III of Bayway's SPPP which documents existing environmental management plans. As such, to complete our response to Deficiency # 1, we added Section 1.4, Best Management Practices, to the GWPP Plan, referencing the SPPP. The new Section 1.4 is included herein as Attachment A for reference. The revised portion of the GWPP Plan is also attached as requested. GWPP Plan appendices are voluminous and thus were not also attached but can be resubmitted upon request.

Deficiency # 2: (repeated herein for reference)

Incorrect sampling locations for the Rahway River Separator 1 (J01), Rahway River Separator 2 (J02), the Forty Acres Tankfield Separator (J03), and the TTF Separator (J04). P66 representatives are presently collecting samples for each at the final effluent chambers. These chambers contain water treated by the separator to be discharged to the Morses Creek, and the surface waters of the State. P66 has a NJPDES Stormwater Permit that requires monitoring at the same final effluent chamber of the Rahway River separators 1 & 2 and the Forty Acre Tank Field Separator.

Effective immediately, P66 shall collect samples for J01 – J04 from the basins themselves. Samples shall be representative of the untreated water contained within each. P66 shall further update its Characterization Data Sampling and Analysis Plan to designate the correct sampling locations. In preparing this report, this writer conferred with the NJDEP Bureau of non-Point Source Permitting.

This writer became aware of this issue by reviewing the results of sampling conducted by P66 at the J04J separator final effluent chamber for the last 3 years. Most sample results for Xylenes, Toluene, Benzene and ethylbenzene were non-detect (less than 1 or 2 parts per billion). Few were higher than single digits when detected. This is not expected from untreated water contained in a separator with floating weathered oil, oil stained banks, and potential oily sludge on the bottom.

Response to Deficiency # 2:

Bayway will begin characterization sample collection from within the basins for J01 – J04 as directed above by NJDEP but does not agree with the above conclusions that "incorrect sampling locations" were used or that the water being discharged from these facilities is different than the water within the facility just because oil was observed floating in an oil-water separator. In support of our position, we offer the following:

- Samples were collected in accordance with the permit and associated GWPP Plan, so it is not correct to state that Bayway sampled at "incorrect sampling locations". The

discharged water is representative of the water within the basin that is closest to the basin floor and underlying soil.

- A draft GWPP Plan was submitted for review by NJDEP groundwater specialists responsible for developing the current Groundwater Protection Program and who encouraged use of the alternate GWPP method Bayway chose, as allowed by rule. The GWPP was revised in response to NJDEP comments and subsequently approved by NJDEP. The NJDEP personnel were familiar with the facilities, the site, and the GWPP Plan.
- The GWPP Plan was developed based on extensive characterization sampling and years of groundwater monitoring data that showed no impact to groundwater for each of these facilities, including Tremley Separator. As stated in our response to NJDEP's CEI Report for NJPDES NJ0026671, "The four Tremley Separator groundwater monitoring wells were sampled from June 1992 through March 2006 for the BTEX compounds (Benzene, Toluene, Ethylbenzene and Xylenes) in accordance with NJPDES DGW permit NJ0105104, with almost all data results below detection, despite potential past practices dating back to the 1920s predating the Clean Water Act and the data dating back to Exxon's ownership (prior to April 1993)."
- Although the Tremley Separator groundwater monitoring wells have not been sampled for NJ0105104 compliance purposes by Bayway since 2006, ExxonMobil routinely samples groundwater monitoring wells across the site for site remediation purposes, including Bayway's NJPDES wells. Based on data through 2019, ExxonMobil groundwater remediation data shows the area around the Tremley Separator to be in compliance with Class IIA VOC criteria, with no oil or sheen in any wells in the area. As such, current data continues to support the data used to develop the GWPP Plan and confirms that floating oil within the Tremley Separator is not migrating into the ground.
- Unlike process separators, there is no process wastewater entering the four stormwater separators. In the event of a leak exposed to rain, stormwater can carry oil to the separators. The oil and stormwater begin separating with the rain (i.e., oil on ponded water). Any contaminants that want to partition into the water start to partition in transit to the separator. There is no more mixing or treatment in the separator, only separation which has the oil floating up. Any additional partitioning that occurs in the separator is while the oil is floating up through the water. Once on the surface, lighter fractions of hydrocarbon that are most likely to partition into the water phase start dissipating preferentially into the air. The discharged water is representative of whatever did not separate; dissolved contaminants in the water do not get "treated" within the basin after oil separation just because the water is being discharged.
- All four of the separator outlets take water from near the bottom of the basins through outlet pipes that have downturned elbows with the elbow opening above the basin floor. This is by design to keep any floating oil within the basin from discharging with the water below. The water being discharged is the water closest to the basin floor and soil below, and thus the point most representative of what the soil may come into contact with.

The primary objection that Bayway has with sampling the basin is that a representative sample may not be achievable if there is an oil layer in the basin. The floating oil can not migrate to the soil below if it is floating. The water column below the floating oil is what could migrate into the soil. However, if a sample passes through the floating oil, an unrepresentative and disproportionate amount of oil could collect in the sample when it is pulled through the oil. As

the NJDEP knows, an unrepresentative sample is not meaningful. Specific to the Tremley Separator (J04), as we described in our response to NJDEP's CEI report for NJPDES NJ0026671, the separator always has a minimum water level below the surface because the Tremley Ditch dam maintains a minimum water level in the Tremley Ditch that Tremley Separator discharges into; the floating oil in Tremley Separator can not contact the basin floor.

Despite the above points, we note that the tables in the GWPP Plan that was submitted to NJDEP as part of the most recent permit renewal process already reflected sampling from within the separator basins. Table 1A through Table 1D, which cover sampling requirements for the four stormwater separators J01 – J04, respectively, show sampling either from the "Basin or Outlet Pipe". Further to this point, Bayway has sampled the Forty Acre and Rahway River Tankfield separator (J01 – J03) basins at various times instead of the outlet pipe with no differences in data resulting. This change was generally done because the separator outlet pipes are routinely closed and Bayway did not want to have to initiate a discharge just to collect a characterization sample. We did note that Attachment 1 to the GWPP Plan, the Characterization Data Sampling and Analysis Plan, inadvertently did not also show this change. In response, we have updated Attachment 1 to be consistent with the GWPP Plan tables and have included the updated GWPP Plan Attachment 1 for NJDEP's review. The next quarterly characterization sampling period starts on March 1, and Bayway will collect samples from the separator basins as best as possible in an effort to obtain representative samples. Any issues collecting the samples will be noted.

ATTACHMENT A

Ground Water Protection Program Plan (GWPP Plan)

1.4 Best Management Practices

Due to the complexity of a refinery, there are many regulations with at least some overlapping requirements for Best Management Practices (BMPs) to prevent or minimize environmental impacts. As such, there are numerous existing environmental management plans, programs and manuals maintained by Bayway which have some relevance to the GWPP. To minimize the complexity of maintaining similar requirements in multiple documents, and to ensure consistency, the GWPP relies upon references to existing documents to the maximum extent practical, as allowed by regulatory guidance. The GWPP achieves this herein by relying on Section III of the Bayway Stormwater Pollution Prevention Plan (SPPP) for a description of applicable BMPs and associated environmental management plans maintained by Bayway, including the following.

- Discharge Prevention Containment and Countermeasure (DPCC) and Discharge Cleanup and Removal (DCR) Plans (NJAC 7:7-1E).
- Bayway Refinery Spill Prevention Control and Countermeasures (SPCC) Plan (40 CFR Part 112).
- Oil Pollution Act of 1990 (OPA-90) Facility Response Plan (FRP; 40 CFR Part 112 and 30 CFR 154).
- Facility Security Plan (33 CFR 105.255).
- PSM/RMP Systems Documentation Manual, collectively addressing OSHA Process Safety Management (PSM), USEPA Risk Management Plan (RMP) and NJDEP Toxic Catastrophe Prevention Act (TCPA).
- Unit specific operating, inspection and maintenance manuals.

Together these plans contain BMPs addressing containment, operations, training, documentation, hazard analysis, safety, emergency response, housekeeping and maintenance for the refinery, which directly and/or indirectly apply to the GWPP facilities.